Cherowitzo, William E.; **Payne, Stanley E.**
The cyclic q-clans with $q = 2^e$. (English) Zbl 1038.51009
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This paper deals with GQs arising from q–clans, $q = 2^e$. Using a computer, S. E. Payne, T. Penttila and G. F. Royle found several GQs of order (q^2, q). These GQs were called cyclic because they admit a collineation group acting cyclically on the $q+1$ lines through the point (∞). Later on, W. E. Cherowitzo, C. M. O'Keefe and T. Penttila discovered a new infinite family of GQs that appeared to include the examples by Payne, Penttila and Royle. In particular, they provided a unified construction of the previously known families as well the new family. However, it was not so clear that the unified construction always gave a cyclic GQs. In this paper the authors provide a proof of this fact, clarifying the relationship between the collineation group of a GQs and the "magic action", and between cyclic GQs and the corresponding flocks of the quadratic cone.

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